Running head: PROBLEM GAMBLING IN AFFECTIVE DISORDERS

Gambling problems in treatment for affective disorders: Results from the National Epidemiologic Survey on Alcohol and Related Conditions (NESARC)

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Highlights

- Gambling problems in a US representative sample reporting treatment for mood and anxiety.
- Rates of lifetime problem gambling ranged from 3.1% for depression to 5.4% for social phobia.
- There were 8.9% of all respondents indicating a history of at least some gambling problems.
- Gambling problems had mainly psychosocial implications in treatment for affective disorders

Abstract

BACKGROUND: Gambling problems co-occur frequently with other psychiatric difficulties and may complicate treatment for affective disorders. This study evaluated the prevalence and correlates of gambling problems in a U.S. representative sample reporting treatment for mood problems or anxiety. METHODS: *n* = 3,007 respondents indicating past-year treatment for affective disorders were derived from the National Epidemiologic Survey on Alcohol and Related Conditions (NESARC). Weighted prevalence estimates were produced and regression analyses examined correlates of gambling problems. RESULTS: Rates of lifetime and past-year problem gambling (3+ DSM-IV symptoms) were 3.1% (95% CI = 2.4-4.0%) and 1.4% (95% CI = 0.9-2.1%), respectively, in treatment for any disorder. Rates of lifetime problem gambling ranged from 3.1% (95% CI = 2.3-4.3%) for depression to 5.4% (95% CI = 3.2-9.0%) for social phobia. Past-year conditions ranged from 0.9% (95% CI = 0.4-2.1%) in dysthymia to 2.4% (95% CI = 1.1-5.3%) in social phobia. Higher levels were observed when considering a spectrum of severity (including 'at-risk' gambling), with 8.9% (95% CI = 7.7-10.2%) of respondents indicating a history of any gambling problems (1+ DSM-IV symptoms). Lifetime gambling problems predicted interpersonal problems and financial difficulties, and marijuana use, but not alcohol use, mental or physical health, and healthcare utilisation. LIMITATIONS: Data were collected in 2001-02 and were cross-sectional. CONCLUSIONS: Gambling problems occur at non-trivial rates in treatment for affective disorders and have mainly psychosocial implications. The findings indicate scope for initiatives to identify and respond to gambling problems across a continuum of severity in treatment for affective disorders.

Key words: affective disorders, anxiety disorders, treatment-seeking, problem gambling, population sample, comorbidity

The terms ‘pathological gambling’ or ‘gambling disorder’ describe psychiatric conditions in the ICD-10 [1] and DSM-5 [2], respectively, which are characterised by persistent and recurrent maladaptive gambling that precedes gambling-related harms (e.g., severe debt, relationship breakdown). The term ‘problem gambling’ is often used to describe a broader spectrum of difficulties that are defined by occurrences of gambling-related harms, and these range from moderate problems to severe harms [3]. The latter terminology is aligned with a public health framework [4] that recognises additional impacts of gambling at lower levels of severity, which are commonly described in terms of ‘at-risk’ gambling [5]. Such problems co-occur frequently with other Axis I conditions, the most common of which are substance use, mood and anxiety disorders (reported by around 58%, 38% and 37% of problem gamblers, respectively) [6]. Although rates of gambling problems among individuals suffering other primary disorders are generally lower, there are studies showing non-trivial levels (>10%) of moderate to severe problems in patients seeking treatment for various psychiatric conditions, including psychotic [7] and posttraumatic stress [8] disorders. These include treatment for substance use problems, where studies indicate around 23% of patients that report difficulties across the spectrum of problem gambling [9]. Within such contexts, these co-occurring issues are associated with psychosocial harms (e.g., relationship breakdown) [10] that highlight implications for treatment and prognosis of the primary presenting problem.

Data from patients in treatment for affective disorders also indicates high levels of comorbid conditions [11], including obsessive-compulsive and substance-related disorders [12]. However, there has been limited recognition of gambling problems in treatment for affective disorders, with only two relevant studies available [13, 14]. These recruited patients (n = 275 [13] and n = 579 [14]) from selected treatment services (k = 1 [13] and k = 6 [14]) in Canada and the US. They indicated rates of gambling problems among patients with

depression that range from 5-13%, with variablity observed across studies, measurement scales, and levels of problem severity. Comparable estimates in bipolar disorder extend from 3-12% [13, 14]. These studies indicate associations with clinical outcomes including severity of mood disorders and suicide risk. Such findings, however, should be interpreted cautiously given the limited number of studies and their limitations. The latter include a tendency to derive data from small numbers of services that do not generalise across regions or settings, and consideration of limited correlates. There are no relevant studies that have examined treatment for anxiety disorders (apart from one study of posttraumatic stress disorders) [8]. In this context, the purpose of this short communiction is to describe an evaluation of prevalence and clinical correlates of gambling problems in a nationally representative sample reporting treatment for a range of affective disorders. This was derived from the U.S. National Epidemiologic Survey of Alcohol and Related Conditions (NESARC) [15].

Methods

Sample

The NESARC is a representative survey of U.S. adults (≥ 18 years) in non-institutionalised settings, which was conducted in 2001-02. The study was based on a multi-stage stratified sampling design, with Census primary sampling units (PSUs; stratified by socio-demographics), households, and individuals sampled in succession. Black and Hispanic households were oversampled. One person from each household (or ‘group living’ arrangement) was randomly selected, with respondents aged 18-24 years having greater probability of selection. Once respondents had consented, data were collected through face-to-face interviews with 43,093 respondents (yielding a response rate of 81%) (see [15]).

Data for the current analyses were derived from a sub-sample of respondents who were identified through questions about (a) ever seeking treatment for a mood or anxiety disorder, and (b) age during the most recent episode of treatment. These were asked in

sections about depression, dysthymia, mania/bipolar, panic disorder, social phobia, specific phobia and generalised anxiety. In reference to depression, for example, the questions were:

(a) Did you EVER go to any kind of counsellor, therapist, doctor, psychologist or any person like that to help improve your mood or make you feel better?

(b) How old were you the MOST RECENT time you went anywhere or saw anyone to get help for (feeling sad, blue, depressed or down / not caring about things or enjoying things)?

The study thus adopted an inclusive definition of treatment-seeking, which was indicated if respondents reported (a) seeking help ever from a health professional, and (b) a recent episode of help-seeking that occurred within one year of their current age. These items identified a total of n = 3,007 respondents, who were representative of U.S. adults reporting treatment for mood or anxiety disorders. This sample was predominantly female (73.2%), white/non-Hispanic (65.5%), and aged ≥ 45 years (45.4%), 30-44 years (34.8%) or 18-29 years (19.8%). Respondents were married/cohabitating (41.6%), divorced/separated/widowed (34.6%) or never married (23.8%). Most had some post-school education or higher (54.4%). Around half were employed (52.7%), but had low personal income (<$20,000) (59.9%).

Measures

The Alcohol Use Disorder and Associated Disability Interview Schedule-DSM-IV Version (AUDADIS-IV) [16] was used to measure gambling problems. This is a structured tool that measures the 10 criteria for DSM-IV pathological gambling, referencing lifetime and past-year timeframes. Items were administered if participants reported gambling at least five times in any one year. They were used to derive estimates of at-risk gambling (1-2 symptoms) and problem gambling (3+ symptoms).

Correlates comprised measures of substance usage including frequency of drinking (1 = *1 or 2 times in the last year*, 10 = *Every day*) and heavy drinking (consuming ≥ 5 drinks in

one sitting, scored from 1 = *Never in the last year* to 11 = *Every day*), and use of marijuana or other drugs in the past year (0 = *No*, 1 = *Yes*). Scores from subscales of the Short Form-12 [17] indicated past-year mental (Mental Health Component Score) and physical (Physical Health Component Score) health. Past-year health service utilisation was defined in terms of number of stays (overnight or longer) in a hospital, and times receiving care in an emergency room. Past-year occurrences of psychosocial difficulties included (a) troubles with work colleagues, (b) serious problems with a neighbour / friend / relative, (c) termination of a steady relationship, (d) financial crises (e.g., bankruptcy, unable to pay bills), and (d) criminal or legal difficulties.

Data analysis

Data analyses were conducted using STATA 14.0. Weighted percentages (with errors adjusted for complex survey design) estimated the prevalence of lifetime and past-year gambling problems in national populations reporting treatment for affective disorders. Analyses considered a continuum of severity that included at-risk gambling (1-2 symptoms) and problem gambling (3+ symptoms). Regression analyses estimated relationships between lifetime gambling problems (past-year numbers were too small) and clinical correlates; the former treated as a quasi-continuous variable reflecting number of symptoms, and the latter specified as dependent variables in a series of models. These included logistic (when dependent variables were binary), negative binomial (when variables reflected count distributions) and linear models (when approximately normally distributed). Socio-demographic variables (sex, age, race, relationship status, education, employment status, annual personal income) were held constant. Parameter estimates (with 95% CIs) comprised adjusted odds ratios (aORs), Incident Risk Ratios (IRRs), and unstandardised regression coefficients (for logistic, negative binomial and linear models). Given the large number of strata with singleton PSUs, only PSUs were used to cluster variance in these analyses.

Results

Table 1 provides weighted estimates of lifetime and past-year gambling problems. In treatment for any affective disorder, the estimated rates of lifetime and past-year problem gambling (3+ symptoms) were 3.1% (95% CI = 2.4-4.0%) and 1.4% (95% CI = 0.9-2.1%), respectively. Across disorders, the rates of lifetime problem gambling ranged from 3.1% (depression: 95% CI = 2.3-4.3%) to 5.4% (social phobia: 95% CI = 3.2-9.0%), with past-year disorders ranging from 0.9% (dysthymia: 95% CI = 0.4-2.1%) to 2.4% (social phobia: 95% CI = 1.1-5.3%). Rates were higher when considered across the continuum of severity. In treatment for any affective disorder, for example, there were 5.8% (95% CI = 4.9-6.9%) of respondents reporting 1-2 lifetime gambling symptoms, and thus a total of 8.9% (95% CI = 7.7-10.2%) who reported a history of at least some problems with gambling (1+ symptoms).

TABLE 1

A series of regression analyses estimated associations between gambling problems and clinical correlates, controlling for socio-demographic variables. For these analyses, the sample of participants reporting treatment for any affective disorder was considered (*n* = 3,007), while lifetime gambling symptoms comprised the predictor of interest. The results are provided in Table 2, which show a positive association between gambling symptoms and past-year marijuana usage, but not usage of alcohol or other illicit drugs, and mental or physical health status. There were no significant relationships involving medical utilization. However, there were positive associations with psychosocial difficulties, including past-year reports of major financial crises, interpersonal troubles at work, and interpersonal problems with friends or relatives.

TABLE 2

Discussion

In a representative sample reporting past-year treatment for affective disorders, the results indicated that around 3.1% of respondents reported lifetime problem gambling, and around 1.4% demonstrated a comparable condition in the past year. These estimates are towards the lower end of comparable figures from two prior studies of smaller samples of patients in treatment services [13, 14], but are elevated relative to the general population (the rate of lifetime problem gambling in the total NESARC sample was 1.4%, 95% CI = 1.2-1.5%). There were higher levels of gambling problems when considered across a spectrum of severity, with around 9% of all respondents demonstrating a history of at least some problems with gambling, including low-severity problems (i.e., 'at-risk' gambling). The latter are important given recognition of the public health burden from individuals who are sub-clinical according to diagnostic models (by virtue of their larger numbers) [4]. There was evidence of modest variability in rates across treatment for specific mood and anxiety disorders. Although such differences should be interpreted cautiously, given that categories were not mutually exclusive, there were suggestions of particularly high rates of gambling problems (including 'at-risk' gambling) in treatment for bipolar disorders, as well as anxiety disorders. As far as we are aware, this is the first study to evaluate gambling problems in treatment for anxiety disorders, and thus makes a novel contribution to existing literature.

The study evaluated a range of clinical correlates of gambling problems, and indicated no significant associations with alcohol or substance usage (except marijuana use), overall mental or physical health, or healthcare utilisation. These findings are consistent with comparable analyses of data on treatment for substance use problems [10], and may suggest that gambling problems have lesser implications for patients in treatment for affective disorders, relative to non-clinical settings [18]. Although speculative, such reduced effects may be explained by high levels of psychiatric severity, and thus range restriction, that

generally characterise clinical samples. However, the study indicated associations with past-year reports of interpersonal problems and major financial difficulties. These findings suggest that gambling problems have mainly psychosocial implications for people in treatment for affective disorders, with such problems (e.g., financial difficulties) providing visible signs that could prompt clinicians to inquire about gambling problems that may be undetected.

The study extends research on gambling problems in treatment for other primary (e.g., substance use) conditions [9], through indication of rates and implications in individuals seeking help for affective disorders. This research is situated in a broader literature that demonstrates high levels of comorbid conditions in samples of problem gamblers [6], and contributes by indicating settings and samples that are vulnerable to gambling-related harms. Relative to prior research, the strengths of the study include use of a large and representative sample, and a broad definition of treatment-seeking that included help from different health professionals (i.e., counsellors, therapists, doctors, psychologists). As such, the results were generalizable across regions and clinical settings, and provided new information about gambling problems in mood and anxiety disordered samples, and a spectrum of problems including ‘at-risk’ gambling. Notwithstanding, the findings must also be interpreted in light of limitations. The data was collected in 2001-02, and may underestimate rates of problem gambling in contemporary settings given expansions in gambling availability across subsequent years. The analyses were based on cross-sectional data, and various explanations for associations remain plausible. The study used a measure of lifetime DSM-IV symptoms for pathological gambling, which do not reflect the modified criteria in the DSM-5, and also provide an imperfect operationalization of the continuum of severity. The performance of this measure may be particularly poor at lower levels of severity.

Despite these limitations, the current study provides strong evidence of non-trivial rates of gambling problems in treatment for affective disorders, particularly when considered

across a continuum of severity. The findings suggest scope for initiatives to identify and respond to these issues in such clinical contexts. At a minimum, there should be vigilance for moderate to severe gambling problems in affective disorders, whereby clinicians are trained to inquire about gambling given visible risk-factors (e.g., financial difficulties) and provide facilitated referrals to specialist treatment services. Where contextual resources are available, there should be further endeavours to identify and respond to problems across lower levels of risk or severity, which are indicated targets of prevention and early intervention strategies. These may involve screening and delivery of brief interventions (e.g., motivational interviewing) [19], which are suited to time-limited contexts where addictive behaviours are not the presenting problem. Such initiatives would be analogous to alcohol screening and brief intervention programmes that are recommended within generalist healthcare settings [20], and are important from a population health perspective. Such strategies can help move individuals away from trajectories of increasing risk and worsening problems, thus preventing the worst consequences of gambling before they occur.

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Table 1. Lifetime (LT) and past-year (PY) estimates of the prevalence of at-risk gambling (1-2 DSM-IV symptoms) and problem gambling (3+ DSM-IV symptoms) in treatment for affective disorders.

	Any Treatment		Depression		Dysthymia		Mania / Bipolar		Panic Disorder		Generalised Anxiety		Specific Phobia		Social Phobia	
	n = 3,007		*n* = 2,155		*n* = 652		*n* = 432		*n* = 879		*n* = 613		*n* = 278		*n* = 263	
	LT	PY	LT	PY	LT	PY	LT	PY	LT	PY	LT	PY	LT	PY	LT	PY
At-risk gambling	5.8%	3.5%	5.5%	3.5%	5.5%	3.7%	10.6%	5.5%	6.7%	3.8%	5.9%	2.6%	6.7%	5.9%	6.0%	4.9%
(95% CI)	(4.9 to 6.9)	(2.8 to 4.4)	(4.5 to 6.8)	(2.7 to 4.5)	(3.6 to 8.3)	(2.2 to 6.0)	(7.3 to 15.1)	(3.3 to 9.0)	(5.1 to 8.8)	(2.6 to 5.4)	(3.9 to 8.9)	(1.5 to 4.4)	(4.0 to 10.8)	(3.4 to 10.3)	(3.6 to 10.1)	(2.7 to 9.0)
Problem gambling	3.1%	1.4%	3.1%	1.5%	3.6%	0.9%	4.6%	2.3%	3.1%	1.2%	3.4%	1.6%	4.3%	1.3%	5.4%	2.4%
(95% CI)	(2.4 to 4.0)	(0.9 to 2.1)	(2.3 to 4.3)	(0.9 to 2.4)	(2.2 to 5.8)	(0.4 to 2.1)	(2.5 to 8.2)	(1.1 to 4.7)	(2.0 to 4.8)	(0.6 to 2.7)	(2.0 to 5.9)	(0.6 to 3.9)	(2.2 to 8.3)	(0.4 to 3.7)	(3.2 to 9.0)	(1.1 to 5.3)

Table 2. Cross-sectional associations between lifetime gambling problems (DSM-IV symptoms) and clinical and psychosocial variables, controlling for socio-demographics.

Variable	Estimate	95% CI	
		LB	UB
Substance usage			
Alcohol			
Frequency of drinking any alcohol[a]	1.01	0.95	1.07
Frequency of drinking ≥ 5 drinks[a]	1.07	0.97	1.18
Marijuana	1.24**	1.08	1.43
Other drugs	1.11	0.97	1.26
Health status			
SF-12 Mental Health Component Score[b]	-0.10	-0.70	0.50
SF-12 Physical Health Component Score[b]	0.51	-0.08	1.09
Medical utilization			
Times stayed overnight in the hospital[a]	0.98	0.85	1.13
Times treated in hospital emergency[a]	1.23	0.94	1.61
Psychosocial difficulties (past year)			
Trouble with boss/coworker	1.17*	1.02	1.35
Problems with a neighbor/friend/relative	1.20**	1.05	1.37
Separated, divorced, broke off a steady relationship	0.95	0.83	1.10
Financial crisis, bankruptcy, unable to pay bills	1.16**	1.04	1.30
Trouble with police, arrested, sent to jail	1.10	0.97	1.25

[a] IRR

[b] Unstandardised regression coefficient

* $p < .05$, ** $p < .01$

Sample size ranges from 2998 to 3007, due to missing values for the dependent variables.